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ABSTRACT

Using two university classroom groups taught by the same instructor, this study investigated the relationship of seating choice to number of verbal classroom responses, cumulative grade point average (GPA), and grade in class for both rows and "action zones" to identify classroom areas. Class 1 (where students chose seats) showed a significant difference in action zones, i.e., more responses emanated from some seating areas than from others; Class 2 (where seats were assigned) showed no significant differences. A questionnaire on "preferred" seats in Class 2, however, showed expected results that highest achievers and most frequent responders prefer front row and middle center action zone. (Author/RC)

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Relationship of Assigned Classroom Seating Area to Achievement Variables

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Recent research on college classroom environments (Becker et al. 1973) has stressed the need to re-examine the function the classroom can or should serve. What more can be known of the ecology of classrooms? Walberg (1969) declared that if we can characterize students who sit at various places, we can better understand the social psychology of the classroom.

Specifically in terms of student seating choice, there has been evidence of a relationship to achievement variables. Using descriptive data, i.e., personality and achievement inventories, it was found that students who expressed a preference for sitting in the front of a class tended to have a negative attitude toward school and did not value good grades (Walberg, 1969). Williams (1971) found that the frequency of class participation was related to the scores from personality inventories given. Students who voluntarily participated most often scored much higher on intellectual productivity indices than those who participated only when called upon. Hare and Bales (1963) used only five-member groups, but they supported the notion that students who were high on dominance inventories chose the more centrally located seats and interacted verbally more often.

Other researchers made greater use of behavioral data (Schwebel and Cherlin, 1963; Adams, 1969; Delefes and Jackson, 1972), finding that students in front seats were more attentive, students' direct communications increased with proximity to the front and center of the room ("action zone"), and that class participation was highest for students who sat in right-middle and right-front seats.

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Sommer (1967) found that in traditional straight row and horseshoe shape designs, typical of college classrooms, more voluntary statements came from students who sat directly opposite the instructor in the first row. Becker et al. (1973) studied performance as measured by grade point average, supporting Sommer's observation that students with high grade point averages tended to select seats toward the middle and front of the class rather than the rear and sides, which were usually occupied by students of lower grade point averages. Sommer believed that this relationship may in part be a function of eye contact with the instructor, i.e., the student's choice of seat and subsequent degree of eye contact may interact with certain role behaviors such as good performance and attentiveness.

To assess further the possible relationship between seating choice and achievement variables, Wulf (1975) examined number of classroom responses, previous grade point average, and grade in the course where the study took place. The earlier research of Sommer (1967) and Adams (1969) was partially supported: In one sample group there was a significant difference at the .05 level for responses in "action zones," i.e., that more responses emanated from certain seating positions and far fewer from others; while data for the second group showed significant differences at the .05 level in rows for the other two variables, grade point average and grade in class.

In an effort to disentangle seating choice from other variables, the first step indicated was to require students to sit in assigned seats and then assess whether responses, grade point averages, or class grade is a function of the environmental location itself—regardless of other personological variables. This present study endeavored to hold constant the issue of seating

choice through assignment of seats by the instructor while investigating the other achievement variables. Then, as an added dimension to the behavioral data, subjects were asked to identify on the room's seating chart "Where I Would Have Preferred to Sit." Therefore, it would seem likely that if responses, grade point average, and grade in class were the result of an "environmental determinism," the subjects assigned to the front row and center front action zone areas would respond most and achieve best. If, on the other hand, seating choice is reflective of other stable personality variables, like need for achievement, then it would be likely that subjects would behave in their accustomed ways of responding and achieving in spite of having been frustrated in their seating choice.

Method

Procedures

Two sections of a 16-week senior course in educational psychology, taught by the same instructor, composed the sample. Both classes met for identical sessions in the same room, 44 students in the first semester and 37 students in the second semester.

In the first semester's class, seats were not assigned, and students chose seats at the early class meetings, remaining in the same places for the entire term. In the second semester's class, students were assigned seats on a reverse alphabetical basis by the instructor at the first meeting and remained in the same places for the duration of the 16 weeks.

An observer attended all class meetings in their entirety and unobtrusively recorded each student response. Responses were identified as any verbal behavior which sought to

(1) answer questions posed by instructor

(2) comment on lecture

(3) ask a question

(4) continue discussion with another student or with instructor

Data were also collected on each student's cumulative grade point average and each student's grade in this particular course.

At the last meeting for the second semester class (where seats had been assigned) students indicated on a seating plan of the room their preference "where I would have preferred to sit" if seats had not been assigned.

To avoid any contamination of the data by the instructor's possible preference for students in the front row or middle action zone, grades for each student were determined by an outside reader who used examinations prepared by the instructor.

The room arrangement was a horseshoe design where seats were bolted together in rows of eight. Three rows faced the instructor and two rows were placed along each side, one row in front of the other. Using Sommer's (1967) method, data for each row were investigated separately. All seven rows were populated in both classes. With the horseshoe configuration, the rows were labeled as follows: Left Rear designated the row for the subjects on the left side of the horseshoe against the side wall, Left Front for the row directly in front of it, Right Front and Right Rear for the rows on the opposite side of the horseshoe, and Middle Front, Middle Middle, and Middle Rear for the three rows directly facing the instructor.

Using the concept of action zones (Adams, 1969; Delefes and Jackson, 1972; Wulf, 1975), the same data for the subjects were examined in blocks of

seats. Specifically, the middle four seats in the first row facing the instructor and the middle four seats in the second row, just behind the first, comprised the Middle Center action zone. Middle Left Side was another zone flanking the Middle Center, as was Middle Right Side. Immediate Left Side was the left side of the horseshoe along the side of the room, and Immediate Right Side was directly opposite. Middle Rear was the last row in the three-row section facing the instructor. There were six action zones composed of six to eight students for each class.

Analysis of Data

Data for each class subject's seating area, response total, former grade point average, and grade in course were collected. For the second semester's subjects where seats were assigned, data were also collected using the "Where I Would Have Preferred to Sit" questionnaire.

A Kruskal-Wallis test was run twice for each class, first using rows as the independent variable and then using action zones as the independent variable. An alpha of .05 was set.

The second semester class' indications of where each subject would have preferred to sit were analyzed in terms of each subject's number of responses and grade in class.

Results

Mean scores for both rows and action zones on the three variables of interest, i.e., number of responses, GPA, and class grade are calculated for the two classes separately (Table 1). The Kruskal-Wallis H' (with correction factor) showed a significant difference at the .05 level in Class 1 for action zones in number of responses, but not in GPA or in class grade. There

were no significant values on measures by rows in Class 1 (Table 2).

In Class 2, where seats were assigned, the Kruskal-Wallis showed no significant results for either rows or action zones on responses, GPA, or class grade.

The results of the "Where I Would Have Preferred to Sit" questionnaire administered to Class 2 showed the following:

1. A majority of all students in the class indicated a preference for the Middle Front Row (59%), while 65% preferred a seat in the Middle-Center Action Zone.
2. No one indicated a preference to sit in the last row (Middle Rear Row or Middle Rear Action Zone).
3. A majority of students who earned "A" grades in the class (80.2% of the "A" students) stated a preference for Middle Front Row, while 66.8% of "A" students selected the Middle Center Action Zone.
4. A majority of "B" students (53%) expressed a preference for Middle Front Row, and 73.4% of "B" students made selection within the Middle Center Action Zone.
5. The "C" students did not express a preference for any particular location. Never did more than 50% of the "C" students choose any row or action zone.
6. In terms of response patterns, if students had sat in their "preferred" seat, 58.4% of the total responses would have originated from the Middle Front Row and 55.8% of the total responses would have originated in the Middle Center Action Zone.
7. If students had sat in their "preferred" seats, second heaviest

areas of responses (after the majority in Middle Front Row and Middle Center Action Zones) would have been Left Front Row (14%) and Middle Left Side Action Zone (.26%).

Discussion

In interpreting the Kruskal-Wallis test results for Class 1 it was concluded that the population means were not all equal, specifically for action zone responses in Class 1. These data tended to substantiate Adams (1969) and Delefes and Jackson's (1972) research in that responses in Class 1 did tend to emanate from one zone location. Supporting the research of Sommer (1967) it was shown that subjects in the back row consistently showed low mean responses, low GPAs, and lower class grades. The present data on Class 1 partially support both the concept of action zone (Adams 1969) and Delefes and Jackson (1972) and the expressive contact hypothesis (Sommer, 1967).

In Class 2, where seats were assigned, the Kruskal-Wallis showed no significant results for grades or responses, either in rows or action zones. It was expected that if such behavior (i.e., responding in class and achieving in the course) were functions of the seating area itself, the assignment to Middle Front Row or Middle Center Action Zone would produce a significant difference. This, based on the results, was not the case.

Based on the data from the "Where I Would Have Preferred to Sit" questionnaire, it appeared that students who were high responders and high achievers tended to emit that behavior - even though they had been assigned a random seat. Both Sommer's (1967) and Adams (1969) work is supported by the behavioral evidence of student response and achievement in terms of their

preferred seat. The fact that 80% of the students who earned "A" grades in the course chose the front row, with 66.8% of the "A" students electing the center action zone, shows that subjects who would have sat in the front row-center action zone still achieved, even though frustrated in initial choice of seat. Another support for the earlier research (Adams, 1969; Delefes and Jackson, 1972; Sommer, 1967) was that if students had been able to sit in their preferred seats, 58.4% of the responses would have come from the Middle Front Row, and 55.8% from the Middle Center Action Zone. It was concluded that the subjects tended to behave (specifically in responses and achievement) as if they had actually sat in their favored position.

As a pilot study, this research leaves questions unanswered. First, the usual problems with self-report. Would they really sit where they said they would prefer to sit? Beyond that, would students in Class 2 have chosen the same seats on the questionnaire if they had been asked at the beginning of the semester and not at the end? It is possible that many students liked the class as evidenced by positive evaluations, and that factor influenced not only their responses and achievement, but their choice of seat as well.

The effect of this study has been to give more support to the idea of differential achievement behavior related to choice of seat. It was found in a class where students chose their own seats that there was a significant difference in response patterns for action zones, while in the assigned-seat class there were no significant differences in responses and achievement based on environmental location. Yet, when data were collected on where such subjects would have preferred to sit, the highest achieving and responding subjects preferred the expected front row-center action zone areas.

Finally, as a result of these findings regarding seating choice, a comprehensive study is recommended - a study where a sample of students would be monitored in a variety of classroom settings. If a subject's seating choices would be consistent across a wide range of classroom environmental situations, then we could more fully understand the social psychology of the classroom.

TABLE 1

MEAN SCORES FOR ROWS AND ACTION ZONES

Class 1

ROWS				ACTION ZONES			
	GPA	GRADE	RESPONSES		GPA	GRADE	RESPONSES
Lt. Rear	3.32	3.20	14.40	middle center	3.13	3.29	7.40
Lt. Front	3.02	3.60	31.80	middle left side	3.31	3.25	27.50
Rt. Front	3.10	3.43	42.43	middle right side	3.11	2.88	10.63
Rt. Rear	3.14	3.20	20.20	immed. left side	2.97	3.50	17.00
Mid. Front	3.20	3.43	15.71	immed. right side	3.18	3.13	53.00
Mid.Mid.	3.13	3.00	5.75	middle rear	3.15	3.33	6.50
Mid. Rt.	3.15	3.33	6.50				

Class 2

Lt. Rear	3.17	3.33	30.33	middle center	3.10	3.25	8.00
Lt. Front	2.88	3.00	6.25	Middle left side	3.09	3.25	19.62
Rt. Front	3.19	3.80	9.20	middle right side	3.13	3.14	15.28
Rt. Rear	2.75	3.20	14.80	immed. left side	2.85	2.67	1.33
Mid, Front	3.02	3.13	3.75				
Mid. Mid.	3.17	3.14	21.14	immed. right side	3.10	3.67	14.00
Mid. Rear	2.85	3.00	28.00				

TABLE 2

KRUSKAL-WALLIS H TEST

H = Without Correction Factor
H'= With Correction Factor

RESPONSES

	Class 1	Class 2
Rows	H'= 11.83> .10	H = 7.67 N.S.
Action Zone	H'= 12.35> .05	H = 8.78 N.S.

GPA

	Class 1	Class 2
Rows	H = 3.89 N.S.	H = 7.96 N.S.
Action Zone	H = .095 N.S.	H = 1.13 N.S.

GRADES

	Class 1	Class 2
Rows	H = 8.34 N.S.	H = 3.32 N.S.
Action Zone	H = 6.67 N.S.	H = 2.87 N.S.

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